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# Utilizing Background Music to Increase In-Seat Behavior for Students with Disabilities

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Utilizing Background Music to Increase In-Seat Behavior for Students with Disabilities

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Thesis Submitted in Partial Fulfillment of the Requirements for the  
Degree of Master of Arts in Education

California State University, Monterey Bay

May 2017

BACKGROUND MUSIC IN THE SPECIAL EDUCATION CLASSROOM

Utilizing Background Music to Increase In-Seat Behavior for Students with Disabilities

Andrew Whitehead

APPROVED BY THE GRADUATE ADVISORY COMMITTEE

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**Abstract**

Students diagnosed with moderate to severe disabilities often struggle to stay on-task and in their seat during classroom lessons. When students are off-task, they are not attending or participating in learning activities, which impacts their ability to acquire new skills. Practical whole class interventions that can be easily implemented are needed to keep students focused and in their seat. The current study provided calming background music during daily learning activities to determine whether on-task, specifically in-seat, behavior would increase in relation to when background music was not provided. Three students participated in an A-B-A-B single case design study where the baseline conditions had no background music and the intervention phases included background music. Results demonstrated an increase of in-seat behavior across the study sample. This indicates that providing background music in a special day class setting may be useful to increase in-seat behavior in special education students with a diagnosis in the moderate to severe range.

*Keywords:* special education, moderate to severe disabilities, in-seat behavior, music

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## Utilizing Background Music to Increase In-Seat Behavior for Students with Disabilities

### **Literature Review**

Teachers need to look no further than their classroom stereo system to find a powerful behavior modification tool; music. Music is used in many classrooms in order to regulate student behavior, as well as to motivate students to participate in the tasks presented (Jones, 2009). The literature supports interventions which utilize music in the general education classroom (Caldwell & Riby, 2007; Rauscher et al., 1993; Thompson et al., 2001). For example, elementary students performed better on an arithmetic task, as well as a memory task when soft background music was introduced into the classroom setting (Hallam, Price & Katsarou, 2002).

### **On Task Behavior in the Classroom**

In order to promote learning, teachers must ensure students engage in on task behavior (Davidson & Powell, 1986). On task behavior is defined as behavior which is appropriate for the classroom (Bell & Davidson, 1976). On task student behavior can be measured in a variety of classroom settings, and includes compliance with assigned seating (in-seat behavior), attending to the lesson, and completing academic work (Bell & Davidson, 1976). On task behavior also enables students to acquire academic knowledge. Those students who do not stay on task often require additional time and resources to keep from falling behind their peers in one or more content areas (Davidson & Powell 1986).

On task and in-seat behavior is especially important for many special education students since these students are at the greatest risk of falling behind their like-age peers (IDEA, 2012). In-seat behavior creates an environment conducive to learning by allowing teachers with the opportunity to teach and students are able to attend to the academic content (Bilgehan, 2013). Students not exhibiting in-seat behavior with regularity have been observed wandering around or

leaving the classroom, failing to attend to lessons and complete academic work, causing distractions for peers and the teacher (McLane, 2016).

In-seat behavior is the first step towards the ability to remain on task in the classroom for students of all ages and ability levels. Although research has discussed obvious undesirable student behavior such as verbal or physical disruption and aggression, an aversion to remaining seated is an equally important behavior to address (Kleinman & Saigh, 2011). Johnson, Turner and Konarski (1978), speak to the need for appropriate classroom behavior, listing the ability for a student to sit in their seat, along with keeping their head and face toward the teacher when addressed as imperative for comprehending new academic content. On task and in-seat behavior leads to increased achievement in academic subjects, as well as pre-academic, pre-vocational and life skills subjects for students across a vast spectrum of school environments. Regardless of school climate, students who are able to remain on task and in-seat perform better than their like-age peers (Stallings, 1980). This positive correlation between on task, in-seat behavior and achievement is observed across grade and ability levels (Harris, Friedlander, Saddler, Frezelle, & Grahm, 2005).

Students who struggle to stay on task and in-seat are more prone to negative behaviors (Ferguson, Lynskey, & Horwood, 1997). This presents a problem because acquisition of new skills, as well as generalization and maintenance of learned skills is hindered (Daley & Birchwood, 2010). The struggle to stay focused in school is an issue for students of all abilities; however, students with disabilities may have a more difficult time regulating their behavior. Interventions for special education students must be designed to help these students stay on task and in-seat, free of classroom distractions (Miltonberger, 2008; Steinkamp, 1980). This is especially important as disruption to the daily routine of special education students with

diagnoses in the moderate to severe range can lead to verbal and physical aggression (Ferrell, 2012).

### **General and Special Education Interventions**

General education teachers have relied on interventions which break classrooms into teams while identifying rule violators by name, removing points and listing specific infractions (Kleinman & Saigh, 2011). Interventions for special education students need to be subtle fun and should seek to engage students (McLane, 2016). Special education teachers require classroom tools and interventions which can be implemented quickly and relatively easily in order to recapture student focus and avoid the disruption of lessons (Patterson, Song, & Zhang, 2009). Special education students with diagnoses in the moderate to severe range who engage in the maladaptive behaviors of hitting and throwing objects in the classroom should immediately be praised verbally in the absence of these behaviors for things such as attending to the lesson (Ferrell, 2012). Each special education student may have curriculum adaptations, teaching methods and approaches specific to them, drastically increasing the work load on the special educator (Bilgehan, 2013).

Special education teachers are often expected to administer lessons on new academic content with multiple behavioral issues occurring concurrently (Harvey, May, & Kennedy, 2004). This often diminishes the special educator's ability to teach effectively. As such, it is necessary that procedures for promoting on task behavior, such as remaining seated in special education settings be relatively easy for the teacher to implement. Further, these procedures should not require excessive additional resources or time, and need to be ethically sound (Poling, Miller, Nelson, & Ryan, 1978; Patterson, Song, & Zhang, 2009). One example of a low cost and easily implemented strategy is replacing chairs with stability balls. Fedewa and Erwin (2011)



found that eight students with a diagnosis of Attention Deficit Hyperactivity Disorder (ADHD) improved the amount of instructional time they were seated by 49%. The change in how often the students sat was dramatically improved.

It is imperative for special education teams to work collaboratively as a way to provide the appropriate interventions for students with disabilities. Through the collaboration of special educators, direct service providers (e.g., speech language pathologists, occupational therapists and physical therapists), students and their families, interventions applicable to a larger population of special education students are beginning to emerge (Freeman, 2013). Effective interventions are multi-sensory, fun, and often build on preferred student activities such as art, physical activities and listening to music (Devlin, 2011).

### **Background Music as a Classroom Tool**

**General education.** General education teachers seek to provide safe, effective learning environments for all students, utilizing multi-sensory classroom tools such as background music. Background music has been found to produce desired effects not just in specific instances, but over a wide array of settings (Simpson, 1976). Music has been studied and utilized as a classroom tool since the 1950s. Hall (1952) reported that over half of the students tested improved reading comprehension scores with the addition of background music during test administration. Others have used background music as a tool for learning academic content (Moore, 1958). For example, students learning about the civil war can experience a lesson on the time period in a more meaningful way with civil war ballads playing in the background (Moore, 1958).

General education students engaging in academic tasks with the provision of background music not only benefited by obtaining better grades, but also were enabled to ask better questions

during class due to being in a more relaxed mind state (Schlichting & Brown, 1970). This easing of student anxiety was seen in similar studies providing sedative, classical music compositions in the 60 beats per minute range, that of the human heart at rest; the theory being high heart rate and blood pressure are lowered (Bancroft, 1976) and (Yellin, 1983).

Davidson and Powell (1986) hypothesized that easy-listening background music would be positively related to the on task performance of pupils in the classroom setting, the implication being that an increase of academic performance could also occur. Background music appears to be a viable and cost effective way of increasing the amount of time students remain engaged academically across subjects (Davidson & Powell, 1986). Based on the literature, it appears the provision of background music may be effective towards promoting desirable student behavior in the general education classroom.

**Special education.** Music has also been shown to be effective in special education classrooms (Adamek & Darrow, 2005). Children with emotional and behavioral difficulties exhibited decreased aggression and other undesirable behaviors, along with an increased willingness to co-operate and work together when background music was played (Hallam & Price, 1998). Three children diagnosed with Attention Deficit Hyperactivity Disorder functioned best in the classroom setting when background music was provided (Scott, 1970). In their study of one 17-year-old student receiving special education services for blindness, as well as a severe learning disability, (Hill, Brantner, & Spreat, 1989) noted an increase of in this pupil's ability to remain seated from 6 minutes during baseline, to 15 minutes when background music was provided during intervention. These studies suggest further research may support the utilization of background music in other types of special education settings. The literature begins to

broaden the type of special education student with the potential for longer in-seat behavior and, in turn, higher academic achievement (Hill, Brantner, & Spreat, 1989; Price, 1998; Scott, 1970).

Lindecker (1954) came to the conclusion that background music can be a method in which the potential danger of agitated situations involving disturbed youth can be diminished. This calming effect was mirrored in the findings of a study involving fifth and sixth graders displaying socially unacceptable behaviors such as acting out and leaving the classroom (Alward & Rule, 1960). Music can reach students in ways other mediums cannot, bridging the gap between a therapeutic environment conducive to learning, and the often times unsettling nature of being at school experienced by special education students (Bilgehan, 2013).

The current literature regarding the effect of music on special education students is steadily growing, and utilizing music as a classroom tool leads to students enjoying learning activities at school (Sze, 2006). Although research has focused largely on the integration of music therapy, musical rhythms, as well as singing and dancing groups, few studies have examined whether background music could increase on task in seat behavior in special education students (Bloor, 2009).

### **Gap in Current Research**

Providing background music has been shown to be predominantly beneficial when done in general education classroom settings (CITE). However, further research is needed across special education classroom settings (Bloor, 2009). This research should seek to see if background music enables special education students to display on task behavior such as remaining in-seat (Campbell, 1996; Ferrell, 2012; Giles, 1991). Given the need for an intervention that can address a wide variety of needs (i.e., setting, disability, academic task), the

current research seeks to discover whether calming background music (i.e., acoustic, mood or classical music) may be effective in increasing in-seat behavior exhibited by these students.

## **Methods**

### **Research Question**

Does providing background music increase in-seat behavior during learning activities for high school students receiving special education services?

### **Hypothesis**

Based on the research, it is hypothesized that providing easy listening, classical background music in a self-contained, special education classroom will lead to a decrease in maladaptive, out of seat behavior, increasing percentage of time participants display in-seat behavior (Campbell, 1996, Ferrell, 2012).

### **Research Design**

This study utilized an ABAB single case design with three students. This allowed for the effect of the independent variable on the dependent variable to be measured for each participant (Barger-Anderson, Domaraki, Kearney-Vakulick, & Kubina, 2004).

After two days in the first baseline period, five stable data points were obtained for the three study participants. The first intervention period lasted three days, followed by an additional baseline period (where again, five stable data points were obtained for the three study participants) and one last intervention period.

**Independent variable.** The independent variable in this study was the provision of background music and used musical excerpts perceived as calming based on prior research (Giles, 1991; Hallam, Price, & Katsarou, 2002). Mood music, such as ocean

sounds or music for meditation, falls into the category of music which would be perceived as calming or soothing. Acoustic, folk singer-songwriter music pieces also can calm the listener. Giles (1991) found that Disney music, music for children, classical and easy listening musical excerpts were perceived as calming by special education students. More recently, Hallam, Price, and Katsarou (2002) confirmed this by playing musical excerpts lasting 60-90 seconds to special education students based on selections by Giles (1991), and found that the students did perceive these musical pieces as calming.

**Dependent variable.** Hill, Brantner, and Streat (1989) operationally defined in-seat behavior as the posterior of the student touching the chair seat, both feet of the student touching the ground, with all four legs of the chair also touching the ground. Students in this study displayed in-seat behavior in plastic classroom chairs with straight backs.

### **Setting & Participants**

This study was conducted in a self-contained (classroom is comprised entirely of special education students and does not include general education students) special day class (the term used to define a special education classroom by school districts). The classroom was located on a high school campus in a local school district. The classroom was comprised of nine special education students, each with a diagnosis in the moderate to severe range. Diagnoses in the class include... Three students comprised the study sample. Two males, ages 16 and 18, and one female age 19. Participants were selected utilizing purposeful convenience sampling based on being special education students having difficulty exhibiting in-seat behavior for the duration of learning activities. Each participant has been assigned a pseudonym to protect confidentiality.

**Danny.** The first student was a Caucasian male, age 16. This student received special education services under the category of intellectual disability. This student was verbal, and frequently spoke out of turn during learning activities in the classroom. The student had difficulty remaining seated during learning activities, as well as when engaging in preferred activities, such as playing a board game or eating lunch.

**Joseph.** The second student was also a Caucasian male, age 18, who received special education services under the category of Other Health Impairment on the basis of being diagnosed with Terminal 22Q Deletion Syndrome. Terminal 22Q Deletion Syndrome is characterized by the demonstration of limited strength, vitality and alertness and subsequently impedes learning. Further, this student demonstrated significantly below average intellectual functioning as well as deficits in adaptive behavior. These deficits manifested during the developmental period and adversely affected the student's educational performance. This student had difficulty displaying in-seat behavior at all times.

**Maria.** The third student was a Hispanic female, age 19, eligible for special education services under the categories of Multiple Disabilities and Vision Impairment. This student demonstrated visual impairments, orthopedic impairments and limited cognitive abilities, which subsequently required specialized instruction in a small group setting. Remaining seated was difficult for this student at all times.

### **Measures**

This study utilized a form generated through the collaboration of three special education teachers to record whether participants were able to display in-seat behavior for 30 second intervals for a period lasting ten minutes. A sample form which will be

utilized to collect base line in-seat behavior data, as well as in-seat behavior data during intervention, can be found under appendix A.

**Validity.** Three inter-rater data collectors were used in this study, in addition to the primary researcher. To ensure validity, all parties collecting data were trained to record in-seat behavior. This included one day of observation during a learning activity not part of the study (McMillan, 2016). In-seat behavior was operationally defined as the students sitting in their chairs, with their hands and arms on their desks or at their side, will all four legs of their chairs as well as their feet touching the ground (Hill, Brantner, & Streat, 1989).

**Reliability.** To ensure inter-rater reliability among the three parties collecting data, the primary researcher also collected data %20 of the time under both baseline and intervention conditions. This helped ensure appropriate fidelity for this study. During each day of baseline data collection, the inter-raters alternated between which study participant they collected data on. This process was repeated during the intervention stage. Inter-rater data was collected and compared for approximately 20% of all trials to ensure that inter-rater agreement of a minimum of 80% was obtained, a percentage adequate for educational research (Graham, Milanowski, & Westat, 2012). Upon data analysis, inter-rater agreement for this study was measured at 90%.

### **Intervention**

The components of the whole-class intervention were a classroom stereo system, and calming, easy listening and classical music excerpts which were played over the stereo at a volume loud enough to hear, but soft enough that spoken conversation can easily be heard while the musical excerpts were playing. Mussulman (1974) spoke to the

notion that although background music is meant to be heard, it should not require the attentive listening of the subject. Hall (1952) found playing soft background music to be an effective classroom tool. The musical excerpts in this study were based on research by Giles (1991) and Hallam, Price, and Katsorou (2002), and were played in the background during three daily learning activities while under the intervention condition. On each intervention condition day, background music was provided for the duration of a ten minute academic arts and crafts activity, as well as for the duration of a ten minute academic morning group activity (e.g., roll call, weather report, calendar, sign of the day), and a ten minute read aloud group activity. The musical excerpts were played with the aim of facilitating longer periods of time during the ten minute activities in which the study sample would display in-seat behavior, as baseline condition data revealed that the study participants were unable to remain seated for longer than two minutes and thirty seconds.

### **Procedures**

Stable baselines were obtained for number of minutes displaying in-seat behavior for each of the three students who comprised the study sample. Percentage of intervals displaying in-seat behavior was recorded (Appendix A) by the three inter-rater data collectors, as well as by the primary researcher during baseline condition (i.e., no background music), and then during intervention condition (i.e., background music was provided in the learning environment).

On each day of baseline data collection, there were three ten minute group activities. One inter-rater data collector was assigned to each study participant prior to the learning activities. For the subsequent activities, inter-raters were rotated. The same



process was followed on each day of intervention data collection, ensuring accurate data was collected on each study participant.

**Data collection.** For each 30 second interval study participants were able to display in-seat behavior, a plus was recorded by an inter-rater (Appendix A). If a study participant was unable to display in-seat behavior for any period of time during a 30 second interval, a minus was recorded by an inter-rater on form appendix A. This process was completed for each ten minute learning activity during the baseline condition, and then during intervention condition, following a group AB design.

**Baseline 1.** Baseline data on the sample was collected. Classroom conditions were normal, with no background music provided. Five stable data points for percentage of intervals displaying in-seat behavior were obtained for each study participant.

**Intervention 1.** Intervention data on the sample was collected. Easy listening, classical background music based on research by Giles (1991) and Hallam, Price, and Katsorou (2002) was played softly (at a volume loud enough to hear, but soft enough that spoken conversation was uninterrupted) during an arts and crafts activity, a morning group activity, and a group read aloud activity.

**Baseline 2.** Baseline data during a second baseline period was collected. Classroom conditions were normal, with no background music provided. Five new stable data points for percentage of intervals displaying in-seat behavior were obtained for each study participant.

**Intervention 2.** Intervention data during a final intervention period was collected. Easy listening, classical background music based on research by Giles (1991) and Hallam, Price, and Katsorou (2002) was played softly (at a volume loud enough to hear,

but soft enough that spoken conversation was uninterrupted) during an arts and crafts activity, a morning group activity, and a group read aloud activity. Five new stable data points were obtained for each study participant, allowing for data analysis of baseline data against intervention data to uncover whether there were any significant findings.

**Fidelity.** Background music was only provided during the intervention condition. During baseline, classroom conditions remained normal, with no background music provided. Three inter-raters (one for each study participant), in addition to the primary researcher were present during the study to ensure fidelity of data collection procedures, and that background music was provided only during the intervention condition over the course of the study.

### **Social Validity**

At the completion of the study, all three inter-raters completed a four-point Likert scale (i.e., 1 = strongly disagree to 4 = strongly agree) social validity questionnaire (see Appendix B). The questionnaire, adapted from Berger, Manston and Ingersoll (2016), consists of nine questions designed to understand the perceived usefulness, significance and satisfaction with the implemented intervention (Kennedy, 2005). Participant responses were kept confidential and descriptive statistics were conducted to gain insights regarding the intervention.

### **Ethical Considerations**

Each participant was given a pseudonym to maintain anonymity and confidentiality. Three inter-raters were utilized to circumvent possible bias on the part of the primary researcher due to a background in music (the potential bias being that a background in music could lead to a desire for the intervention to work). Professional

competence and integrity were expected at all times, keeping respect for the rights and dignity of the sample at the forefront of the study (McMillan, 2016).

**Validity threats.** Adverse reactions by the sample to the selected musical excerpts could have threatened the validity of the study. Students comprising the study sample had not exhibited adverse reactions during school activities where music had been played such as school rallies in the gymnasium, or walking on the school track while the general education band class performed. Easy listening, classical background music such as the excerpts selected for this study have not been shown to cause a maladaptive reaction in special education students (Ferrell, 2012).

### **Data Analyses**

Data was analyzed to determine percentage of intervals displaying in-seat behavior increased, decreased or remained the same in the sample moving from baseline to intervention conditions. Data collected was graphed for mean and range under baseline and intervention conditions for each study participant.

### **Results**

Data were graphed for each study participant (see Figures 1, 2 and 3). The horizontal x-axis displays the sessions and the y-axis displays the percentage of 30 second intervals in which the study participants were able to display in-seat behavior.

#### **Danny**

Danny's average in-seat behavior during the initial baseline was 22.4 seconds with a range of 19.5 to 25 seconds. In the first intervention phase, Danny had a mean in-seat behavior of 46.1 seconds with a range of 40 to 50 seconds. Danny's trend in data from baseline to intervention was positive, with his in-seat behavior improving from 21 seconds at its lowest, to

50 seconds after the first intervention stage. Stability during each phase was determined by six data points of in-seat behavior within five seconds of each other. Stability was determined in baseline phase 1 utilizing the interval recording sheet on Appendix A, then Danny was moved into intervention phase 1 where background music was provided and data was again collected using the interval recording sheet. After nine sessions, an upward trend in Danny’s in-seat behavior was observed and he entered baseline 2. Danny’s average in-seat behavior was 22.3, with a range of 20 to 25 seconds for the second baseline phase. Danny was then moved into intervention phase 2. In this second and final intervention stage, background music was again provided and data was collected over nine new sessions. Danny’s mean in intervention phase 2 was 46 seconds, with a range of 39 to 52 seconds. An upward trend was noted in Danny’s in-seat behavior during this final intervention stage, similar to Danny’s first intervention.

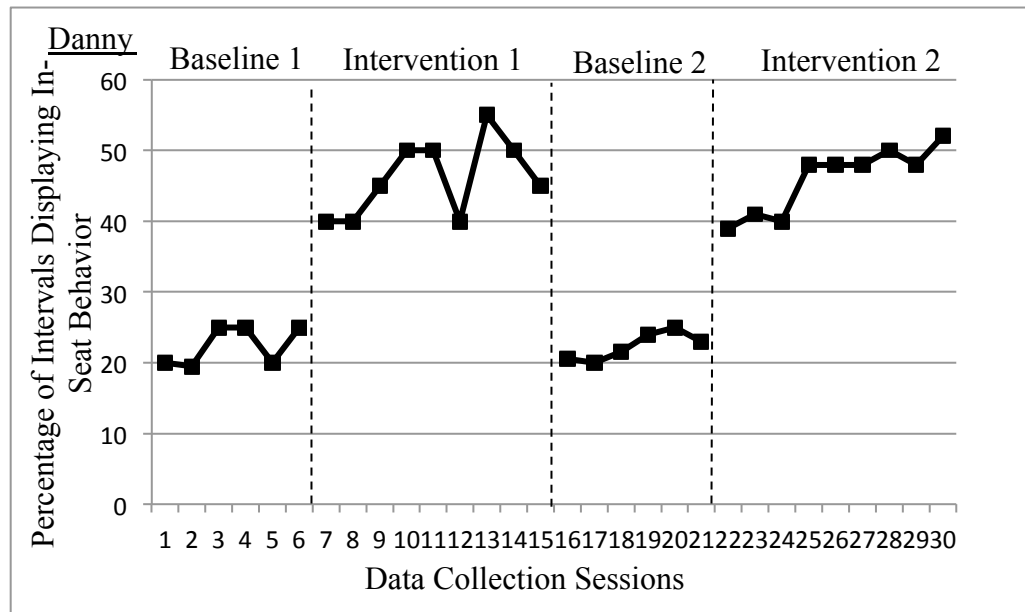


Figure 1. Percentage of 30 second intervals displaying in-seat behavior.

**Joseph**

Joseph's average in-seat behavior was 28 seconds with a range of 25 to 30 seconds during initial baseline. In the first intervention phase, Joseph had a mean in-seat behavior of 39.1 seconds and a range of 36 to 45 seconds. Joseph's trend in data from baseline to intervention was positive, with his in-seat behavior improving from 25 seconds at its lowest, to 45 seconds after the first intervention stage. Stability during each phase was determined by six data points of in-seat behavior within five seconds of each other. Stability was determined in baseline phase 1 utilizing the interval recording sheet on Appendix A, then Joseph was moved into intervention phase 1 where background music was provided and data was again collected using the interval recording sheet.

After nine sessions, an upward trend in Joseph's in-seat behavior was observed and he was returned into baseline phase 2. In this second baseline, Joseph was observed and data was collected in the same manner during six additional sessions to achieve a second stable baseline (six data points of in-seat behavior within five seconds of each other). Joseph's average in-seat behavior for the second baseline was 28.1 seconds, with a range of 25.3 to 30 seconds. Joseph was then moved into intervention phase 2. In this second and final intervention condition, background music was again provided and data was collected over nine new sessions. Joseph's mean in intervention phase 2 was 40 seconds, with a range of 37 to 43 seconds. An upward trend was noted in Joseph's in-

seat behavior during this final intervention stage, similar to Joseph's first intervention.

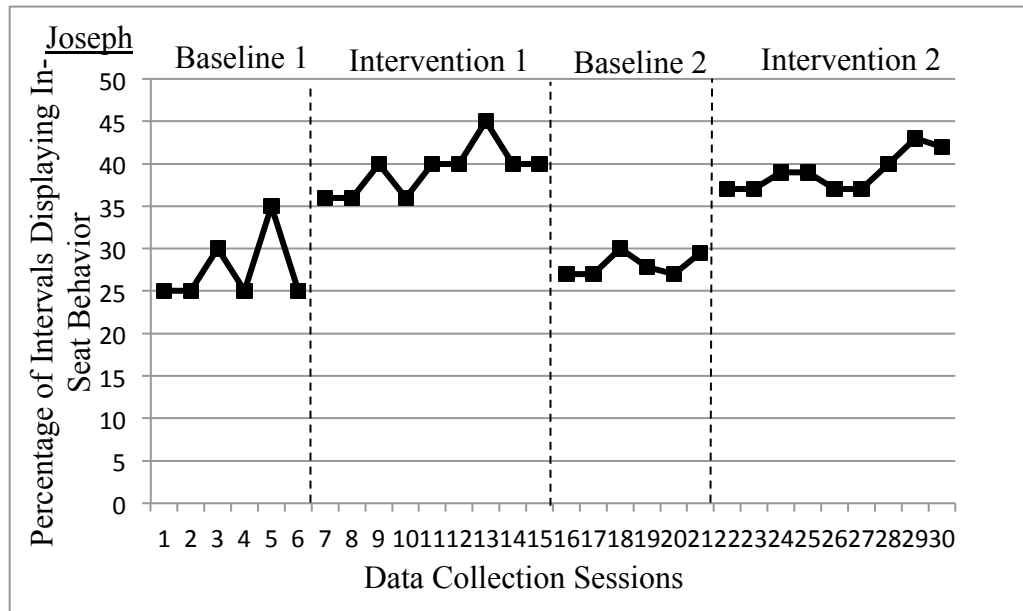


Figure 2. Percentage of 30 second intervals displaying in-seat behavior.

### Maria

Maria had an average in-seat behavior of 17.5 seconds and a range of 15 to 20 seconds during the initial baseline phase. In intervention phase 1, Maria had a mean in-seat behavior of 23.6 seconds and a range of 21 to 25 seconds. Maria's trend in data from baseline to intervention was positive, with her in-seat behavior improving from 15 seconds at its lowest, to 25 seconds after the first intervention stage. Stability during each phase was determined by six data points of in-seat behavior within five seconds of each other. Stability was determined in baseline phase 1 utilizing the interval recording sheet on Appendix A, then Maria was moved into intervention phase 1 where background music was provided and data was again collected using the interval recording sheet. After nine sessions, an upward trend in Maria's in-seat behavior was observed and she was returned into baseline phase 2. In this second baseline, Maria was observed and

data was collected in the same manner during six additional sessions to achieve a second stable baseline (six data points of in-seat behavior within five seconds of each other). Maria's mean in baseline phase 2 was 18.5, with a range of 15 to 20 seconds. Maria was then moved into intervention phase 2. In this second and final intervention stage, background music was again provided and data was collected over nine new sessions. Maria's mean in intervention phase 2 was 25.6 seconds, with a range of 23 to 28 seconds. An upward trend was noted in Maria's in-seat behavior during this final intervention stage, similar to Maria's first intervention.

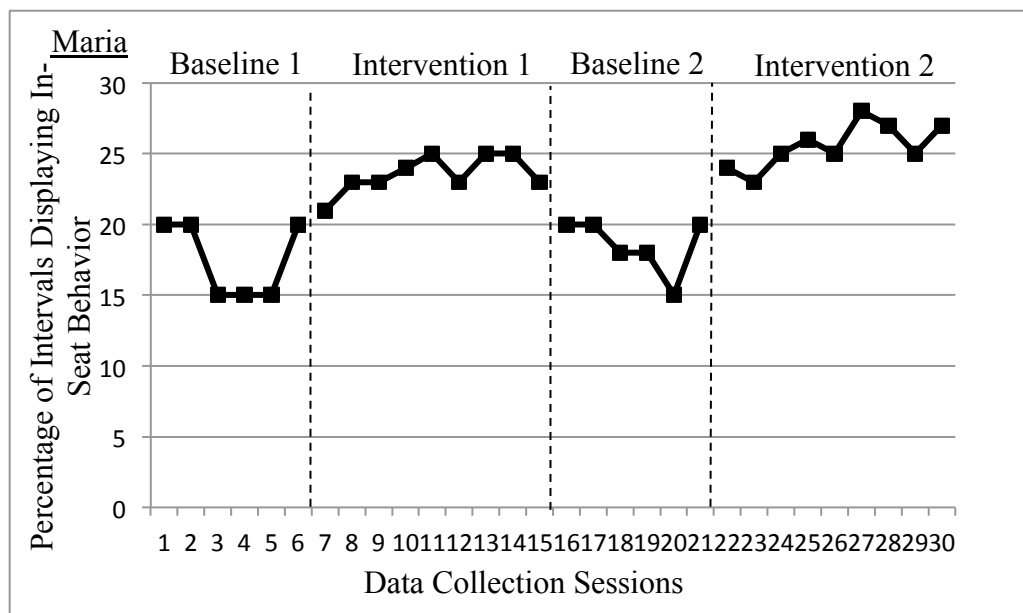


Figure 3. Percentage of 30 second intervals displaying in-seat behavior.

### Discussion

Results of this study suggest that providing easy listening, classical background music in a self-contained, special education classroom will lead to a decrease in maladaptive, out of seat behavior. This increases the percentage of time students display in-seat behavior as other research literature has suggested (Campbell, 1996; Ferrell,

2012). Baseline data was consistent across the study sample. During observations of learning activities with background music, all three participants showed consistency in improved behavior over the course of data collection. After stable baselines were established, each student who participated in the study increased his/her in-seat behavior during intervention stages.

The percentage in increase for in-seat behavior was 138.1% for Danny, 65.4% for Joseph and 75% for Maria. All three participants were not observed to be distracted by, or even to notice the background music provided during intervention stages. Danny, Joseph and Maria were each able to remain seated longer during intervention stages, enabling them to access a larger part of the learning activities they participated in than those occurring during baseline periods. The percentage of non-overlapping data for Danny, Joseph and Maria was 100%. Therefore, there was a functional relationship between providing background music during learning activities, and increased in-seat behavior across the study participants.

Similar to Hallam, Price and Katsarou's (2002) study, a positive correlation between the provision of soft background music and student performance was present during this study. Danny, Joseph and Maria were able to display an increase in in-seat behavior during learning activities in the classroom and their out of seat behavior appeared more regulated with the provision of background music, as shown by each participant's increase in in-seat behavior from baseline stages to intervention stages across this study's ABAB design.



### **Limitations and Further Research**

One limitation of this study is that it included only three participants selected through purposeful convenience sampling. This was due in large part to time constraints, limited resources, and the availability of the study sample in a classroom easily accessible to the primary researcher. In the case of this study, the primary researcher was the special education teacher in the participant's classroom.

Another factor leading to the use of purposeful, convenience sampling was the availability of 1:1 staff support for study participants. As each student comprising the study sample had a 1:1 staff assigned to them, it made sense to train these staff in collecting the data required for this study. This enabled the primary researcher to have multiple inter-rater data collectors, and acquire stable baseline data under a group AB design across participants. Additionally, the short the length of this study from baseline to intervention (five days) provides the impetus for future research on the long term implications of this study.

Further research should also include not only the increase of desirable student behaviors such as displaying in-seat behavior, but also the extinction of unwanted behaviors such as aggression. Lastly, further research is needed to see if academic achievement in special education students can be bolstered through the provision of background music in the classroom. Student engagement directly affects student achievement (Bell, Davidson, 1976; Snavlin, 1990). As one way to measure student engagement is on task behavior (including remaining seated), the implications of providing background music in the special education classroom are compelling.

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**Appendix A**

Interval Recording Sheet

Student:

Interval: **30 second intervals for 10 minutes**

**Baseline (Chair without background music)**

**Intervention (Chair with background music)**

Student posterior touching seat of chair. All four chair legs touching ground. No background music provided.	Student posterior touching seat of chair. All four chair legs touching ground. Background music provided.
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How to record: Partial Interval Recording

**(+) student exhibited in-seat behavior for the whole 30 second interval.**

**(-) student exhibited out-of-seat-behavior at any point during the 30 second interval.**

Observation Date:

Beginning Time:

Ending Time:

<b>:30</b>	<b>1:00</b>	<b>1:30</b>	<b>2:00</b>	<b>2:30</b>
<b>3:00</b>	<b>3:30</b>	<b>4:00</b>	<b>4:30</b>	<b>5:00</b>
<b>5:30</b>	<b>6:00</b>	<b>6:30</b>	<b>7:00</b>	<b>7:30</b>
<b>8:00</b>	<b>8:30</b>	<b>9:00</b>	<b>9:30</b>	<b>10:00</b>

## Appendix B

### Social Validity Questionnaire

Questions:	1 Strongly disagree	2 Disagree	3 Agree	4 Strongly Agree
1 This treatment was effective				
2 I found this treatment acceptable for increasing the student's skills				
3 Using the treatment improved skills across multiple contexts (home, classroom, community)				
4 I think the student's skills would remain at an improved level even after the treatment ends				
5 This treatment improved family functioning				
6 This treatment quickly improved the student's skills				
7 I would be willing to carry out this treatment myself if I wanted to increase the student's skills				
8 I would suggest the use of this treatment to other individuals				
9 This treatment decreased the level of stress experienced by the student's family				